ON THE TOPICAL TREATMENT OF ACNE.

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In introducing to your attention a topic so trite as acne, I hasten to disclaim any expectation of revealing to you some new and masterful scheme for the cure of this very common malady. It is my modest hope, rather, that in presenting the results of my own study and experience, I may provoke a comparison of our views, and so incidentally, perhaps, evoke a modicum of that frictional heat without which the crucible of experience evolves little result that is either definite or durable.

Every physician here has treated acne, and doubtless each has his own theory of what are the most essential indications to be met, and perhaps each one has some special method by which he believes the desired end may be best achieved. That some local treatment is desirable is very generally admitted, but I am under the impression that the opinion most generally prevails that systemic treatment is of greater importance and should be made paramount. The proposition for which I shall contend is that general treatment should be regarded rather as accessory and incidental to measures that are direct and topical.

* Read before the Society of Alumni of Bellevue Hospital, February 5, 1896

My reason for this position is based primarily on the belief that acne is essentially a local disease, not only in its definite location, but in the essentially local causation of the process; and, secondly, my own experience with topical measures, affording me as it has an *argumentum ex juvantibus*, has tended to confirm me in this same belief.

But before we begin to argue we should first agree as to what acne is and what it is not. Inflammatory disease of the sebaceous follicles, even though accompanied with comedones, does not define it. The so-called acne rosacea, acne cachecticorum, acne varioliformis, acne bromata, acne iodata, and acne picealis do not answer to the definition of true acne and therefore are misnomers. If we call the eruption when composed simply of comedones acne, then it is not even necessarily an inflammatory disease. True acne is a disease pertaining to a certain period of life, affecting the sebaceous follicles in certain special areas of the skin and characterized more especially by a peculiar mode of development and by pathological changes which are typical in character and which definitely distinguish it from all other forms of disease of the sebaceous follicles.

It occurs almost exclusively between puberty and maturity. It is practically, then, a disease of adolescence. It may be prolonged into maturity, and it is possible that it may precede puberty, but it is equally certain that many of the disorders occurring very early or late in life which have been commonly regarded as acne have an entirely distinct nature and should not be confounded with the disease we are considering. Its chief site of predilection is the face, and by extension later may affect the shoulders, chest, and back. Its occurrence in the face corresponds to the developing period of the beard in the male, and in both sexes to a period of augmented activity in the pilo-sebaceous system generally, a period of transition which is always a critical

period in any organ concerned during which that organ is peculiarly liable to disorder and disease.

The first and most important of the pathological changes in acne is a local hyperkeratosis, the effect of which is to cause the development of a peculiar body within the follicle, which body is known as the comedo. This is by no means simply a plug of sebum, but a product that is rather complex both in structure and content. It consists of an elongated, barrel-shaped body constricted at its outer extremity or "head," which appears upon the surface as a dark or blackish point, of largest diameter in the middle and tapering off at the lower end. Besides sebum it contains epidermic cells, stratified or in globe-shaped masses, usually a number of lanugo hairs coiled up or twisted together, a variety of micro-organisms in peculiar arrangement, and the whole inclosed in a mantle of stratified corneous cells. This mantle envelops the entire body of the comedo, except its lower extremity, and in the older formations this latter is inclosed also. Apparently the hyperkeratosis at the orifice of the follicle first occludes the opening and, extending down the sides, gradually envelops the sebum and other retained products. The pressure of the accumulating secretion below causes finally a folding of the vertical layer of corneal cells at the orifice of the follicle, so that here they assume a horizontal position and still more effectually imprison the comedo in its bed. It is in these horizontal cells that the discoloration occurs, which commonly has been attributed to an accumulation of particles of dirt, but, according to Unna, is due to a physiological color change in the horn cells analogous to that seen in the horny plates of ichthyosis or in other forms of colored horn tissue. The arguments in support of Unna's position seem conclusive, and, so far as I know, have not been controverted.

Bacteriological study of the contents of the comedo has revealed the presence of abundant parasites. The occasional presence of a follicular acarus, the so-called *Demodex folliculorum*—occurring as it does only exceptionally, and being, so far as known, only an accidental concomitant of the disease without any connection whatever with its origin—need not here be considered; but the flora of the comedo, there is reason to believe, plays a more important part. Unna,* who has made the most exhaustive studies of the bacteriology of acne, attaches so much importance to the parasitic element as to class acne among infectious diseases. The results of Unna's investigations have been fully corroborated by his pupil Hadara,† of Constantinople, working independently and without previous knowledge of Unna's findings. According to these observers, three kinds of micro-organisms occur in the comedo: First, in that portion called the "head," lying near the surface, the diplococci of eczema seborrhoicum are sometimes found, but they are not always present, and, moreover, they occur in the comedones of other follicular troubles that are not true acne. They are not regarded as essential. Secondly, in the same upper portion of the comedo, though a little less superficially situated than the cocci, there occur in the older comedones large flask-shaped bacilli which correspond to the cocci of Malassez. They are also found in pityriasis capitis, in eczema seborrhoicum, and often also in the scrapings from a greasy forehead. They are regarded as of the nature of saprophytes, but not directly related to the ætiology of acne. Finally, in the body of the comedo, chiefly in its fatty parts, in a central cavity at the axis, or in cavities formed in the inner

* *Lehrbuch der speciellen pathologischen Anatomie* von Dr. Johannes Orth. Achte Lieferung (Ergänzungsband, II. Theil). Hautkrankheiten, von Dr. P. G. Unna.

† *Monatshefte f. prak. Derm.*, 1894, 12, p. 573.

lamellæ, though rarely in the outer portions of the mantle, a multitude of very small bacilli are found arranged in bundles or irregularly distributed and imbedded in a glœa. They are said to be invariably present, and are believed by Unna to be the most characteristic factor and the most essential element in the disease.

Whatever opinion may be held concerning these bacilli as a causative factor in the production of the comedo, their invariable presence would certainly seem to imply that they have some ætiological bearing upon the course of the disease, and more especially in the stage of inflammation and suppuration. It is a remarkable fact that in all Unna's careful investigations the ordinary pus germs were never found in the acne pustule. When the suppuration began superficially in the form of an impetigo, as it often does, diplococci, such as occur in the head of the comedo and corresponding to those present in eczema seborrhoicum, were found in abundance, both in the fluid of the pus and in the leucocytes, but no staphylococci. When the suppuration took place in this way the comedonal mantle was usually intact and completely closed the lower extremity; but when the comedo was still open below, the suppuration began lower down, often in the sebaceous gland or in the hair follicle, and then only the small bacilli were present. In both cases, according to Unna, the inflammation is much oftener intrafollicular than circumfollicular. Other authorities—such as Leloir, for example—have held that the inflammation at its inception is generally circumfollicular. Assuming that Unna's view is correct in this, the sharp limitations in area of the inflammation in acne, showing as it does a marked contrast in this respect to the diffuseness of a phlegmon or a follicular furuncle, is easily accounted for. Moreover, it lends a more favorable aspect to the efficacy of topical treatment.

The indications for treatment, so far as they may be discerned in the pathological anatomy, point clearly enough to local measures as the most rational mode of relief. But there are in acne, as in every irritative disease, predisposing and accessory as well as determining causes that call for consideration. In this instance the predisposing cause is age. Acne may justly be considered as a developmental disease—a disease the predisposition to which is incidental to the developmental changes of adolescence. But in this connection there is only one means of relief suggested, and that is homœopathic. For that condition of which age is the cause the remedy is more age—a prescription with which few patients, however, are content.

The suggestions afforded by the accessory causes are more practical. There are many disorders of health, more or less general and more or less transitory, that have an undoubted influence over acne. On these an immense amount of attention has been bestowed. Naturally by the laity they are the only causes recognized. To one or another of them is the annoying eruption ascribed as its sole and sufficient cause. It is error of diet, indigestion, dyspepsia, constipation, menstrual disorder, sexual continence, incontinence, bad habits, faulty nutrition, anæmia, plethora, or anything else that happens to be wrong in the economy at the time of the acne's appearance. There is no doubt that any one or more of these ailments may influence the course of acne as they may that of almost any other disease. Such ailments produce more or less disorder of the whole system, and the systemic disorder seeks out particularly the *loci minoris resistentiæ*. Thus any local inflammation is almost always aggravated by a poor or deranged condition of the health, and this influence is capable of converting a latent or subacute condition into one that is active and acute. A foreign body long dormant in the tissues may,

under the incitement of general disturbance, suddenly awaken the environment to recognize the intruder and to resent the intrusion. In acne for a long time the follicles seem to acquiesce in the infringement upon their function. Indifferent to their retained products and motley inhabitants, they remain quiescent as a village of prairie dogs, owls, and rattlesnakes; but let some general derangement affect the economy at large, and there will be a sudden onset of inflammatory excitement in the follicles, which, though primarily due to exhausted tolerance within, is precipitated by the disturbance from without. The elements of disorder were already there. It was acne before the general disturbance, and is only acne afterward. To abate the general trouble, much as it may assist the cure, does not remove the factors most essential to the disease.

All authorities agree that the folliculitis of acne is chiefly dependent on the production of the comedo, though they differ as to what produces the comedo. Virchow regarded it as due to an atony of the follicle, with inability to expel its contents. Biesiadecki attributed it to an obstruction caused by fine lanugo hairs which, instead of growing out through the pilo-sebaceous follicle, were deflected downward toward the gland and, accumulating there, obstructed the escape of the secretion. Leloir and Vidal refer the trouble primarily to the sebaceous gland, its disordered function giving rise to a sebum of greater consistence than is normal, and as a consequence the product remains as a semisolid body sticking in the follicle. None of these views, however, explains the process so satisfactorily as that which refers it to a primary hyperplasia of the horn cells in and about the sebaceous follicles—a morbid and excessive growth of horny tissue incidental to the physiological transition of the individual from youth to maturity. At what period of acne the parasitic element

comes into play is not definitely determined. It would seem more rational to regard it, at least at the start, as an accidental concomitant of the comedo, but which ultimately takes a sufficiently prominent part to shape the subsequent course of the affection in a typical manner and virtually convert it into an infectious disease.

The prime indications for the treatment of acne as implied above require: 1. Reduction of the hyperkeratosis. 2. Removal of the comedones. 3. Disinfection of the follicles, and finally the employment of such local or general antiphlogistic measures as the case may require. Of these objects, the first two are accomplished by mechanical means, the first three by topical measures, while the last may require both topical and general treatment. To particularize the methods by which this treatment is to be carried out is perhaps superfluous. It is rather the principles of treatment on which I would insist than upon special ways and means of its accomplishment. In mentioning my own methods it is rather by way of illustration than for the reason that I presume them to be any better than yours. A workman, after all, is at his best with his own tools and appliances so long as they are adapted to the desired ends. I begin with the curette—to me an indispensable implement in the management of acne—and show you here a form which has long served me well. It has an elongated olive shape, with a large fenestra that is easily cleaned, and the edges, which are but slightly curved, are rather sharp. The curettes commonly used are too small, and answer for little more than one follicle at a time. This instrument, which is manipulated in much the same manner, doubtless, as was the ancient Roman strigil, is suitable both for the face and the broad areas of the back and chest. In using it, the skin is first put on the stretch, and the edge is then swept with rapid free-hand strokes over

the affected surface, with the effect of planing off the corneous elevations, which can always be felt as little prominences above the niveau wherever comedones are, also clipping off the tips of many pustules and removing at once the horny cap that seals the orifices of the distended seba-

Two thirds actual size.

ceous follicle. By this means is accomplished in an instant what would be less thoroughly effected by applications of salves, soaps, hot water, or steam for days or weeks. While this manipulation removes both the superficial keratosis and to some extent also the contents of the follicles, to thoroughly remove these latter each follicle must be treated separately. Most of the comedo extractors in use are of a cylindrical form that has been developed from the simple device of the watch key, and act by pressing equally on all sides of the follicle whereby the contents are expelled. A very good modification is Clover's comedo presser, which is cup-shaped, with a little hole in the centre. Fox's instrument, which in many cases is serviceable, is in the form of a little scoop with a notch at the edge, which is pressed against the follicle and at the same time is given a circular motion around the follicle. The device which I almost invariably employ forms a part of the curette or strigil which I have just shown you. It is at the back of the instrument at its tip where the edges of the fenestra form an acute angle. The inner edges are abrupt, while the outer edges are rounded off with a sufficiently broad surface of metal between to permit considerable

pressure without bruising or abrading the skin. To use the instrument as a comedo presser it is turned with its back to the surface so that the follicle to be emptied shall appear at the centre of the fenestra, into which, by making some pressure, the skin slightly bulges. It is then drawn down very slowly till the comedo is just at the apex of the angle, and with some increase of the pressure an easy delivery results and the comedo is brought into the world. By this manœuvre it is often possible to empty several follicles at one stroke. In case there are unopened pustules or comedones that are unusually refractory, a slight slitting of the top and rim of the follicle facilitates the expulsion. In still more refractory cases, where the comedones are especially dry and the horny tissue sealing up the orifices is unusually dense, it is well, before attempting a thorough removal of the comedones, to apply some keratolytic preparation in order to soften the horny epidermis, and for this purpose the following combination is useful:

℞ Vinegar..... 2 parts;
Glycerin..... 3 "
White bole or kaolin..... 4 "
M.

Upon the completeness with which all the follicles are emptied will depend very largely the success of the treatment. The location of the affected ones is detected as much by touch as by sight. Whenever the palpating finger encounters a definite point of resistance, whether it be a minute papule not larger than the head of a pin or a tubercle or nodule, there is most likely an occluded and distended follicle. In acne indurata, though there may be little or no sign of inflammation on the surface, when the little nodule is pressed between the thumb and finger the surface blanches, betraying the presence of secretion or pus within. In this case a rather deep incision is necessary before

pressing out the contents. It is best made with a triangular double-edged knife, such as Jaeger's straight keratome When the contents are not easily pressed out, as is rarely the case, however, they may be scooped out with a very small curette introduced through the incision into the follicle; but inasmuch as the lining membrane of the follicle, though distended, may be still intact, and as it is desirable, if possible, to keep it so, the curette should be used with caution. On the other hand, when the suppuration is diffuse, as it sometimes is, one follicle often communicating with another, I consider deep curetting as almost indispensable. It is rarely possible, of course, to operate at one sitting on all the follicles requiring treatment. It takes time to correct a bad habit of the body as well as habit of mind. Some lesions will be overlooked, some in process of formation will betray themselves later, some once operated on may fill again and again become occluded. But relapses will be less and less frequent, depending on the thoroughness with which these mechanical measures are carried out, and also on the attention paid to those other measures to which we next proceed.

After the mechanical treatment comes disinfection. Though this may be partly intrusted to the patient, a very important part devolves upon the physician before the patient leaves his chair As soon as we have finished with the curette and comedo presser the skin affected should be well bathed with bichloride of mercury either in a solution of 1 to 1,000 or in a one-per-cent. bichloride soap with a sufficient amount of water. If there are many pustules, before the bichloride wash, sop on peroxide of hydrogen or the three per-cent. pyrozone. In using either of the two latter, however, be careful to avoid the eyebrows or borders of the hair, which might otherwise be discolored. For the worst places a still more effectual disinfection can

be made by introducing some moderately strong germicide directly into the interior of the follicle. I have found that this may be very conveniently done by means of a small quill toothpick whittled down so as to have a fine, tapering, flexible end though not too sharp at the point. This is first dipped in the disinfectant—for example, a twenty-five- to fifty-per-cent. solution of carbolic acid in glycerin—and is then carried to the bottom of the emptied follicle. For the larger pustules of acne indurata a tiny wisp of cotton may be twisted about the tip of the quill.

For the disinfectant treatment that the patient carries out at home I rely almost exclusively on two drugs—namely, sulphur and resorcin. For a few days, or occasionally, a bichloride soap may be advisable, as well as lotions of pyrozone or peroxide of hydrogen, and special remedies may now and then be required to meet special indications; but in routine treatment for disinfectant purposes it rarely becomes necessary to prescribe other remedies than the two mentioned. The sulphur is most suitable for cases characterized by marked suppuration, and it furthermore seems to have some effect in keeping the follicles open. The resorcin is known to be a germicide for the diplococci of eczema seborrhoicum and is probably for the acne bacilli as well. It has, moreover, a certain control over hyperæmia, and is therefore particularly adapted to those cases of acne in which the latter is a prominent feature, as, for example, when in young adults it is associated, as often happens, with rosacea. I am under the impression that resorcin, moreover, has some effect to tighten up the follicles after evacuation of their contents. For these reasons, in the majority of cases, the earlier prescriptions call for sulphur and the later ones for resorcin. For the employment of sulphur I have found nothing more satisfactory than the so-called *lotio alba*, which consists of a drachm

each of potassium sulphide and sulphate of zinc in four ounces of rose water, and the resorcin I use in a three- to four-per-cent. solution in water, or in alcohol (or cologne) and water. These lotions should be applied rather frequently, at least at first—that is, from three to five times a day. If the disease does not then abate it is not to them I charge the fault so much as to want of thoroughness in the manipulations first described.

Under antiphlogistic measures must be included in this connection all such as tend in any way to counteract inflammation. Means designed to relieve any reflex irritation that is liable to affect the course of the disease and render it more inflammatory becomes for the acne an antiphlogistic measure, and the same might be said of the treatment of almost any form of departure from general health which tends to aggravate the local disease. But such methods of treatment I shall leave to others to particularize. Certain it is there is no specific internal treatment for acne. I shall only refer to the direct and topical means of relieving inflammation. During the course of the mechanical treatment, or longer, the patient should be directed to apply each night on going to bed, and perhaps oftener, some emollient and healing salve. I know of none better than that of Lassar, consisting of oxide of zinc, starch powder, and vaseline. It is a desiccating ointment that does not macerate the skin and so increase its vulnerability. It is somewhat unpleasant to use because difficult to remove, but with vaseline can with a little care be rubbed off in the morning. Resorcin, inasmuch as it reduces hyperæmia, is also an antiphlogistic remedy. Dusting powders, such as talcum, are useful, and I do not entertain the fear often expressed that there is danger of their clogging up the follicles. As we have seen, the occlusion of the follicle is effected by a process quite independent of the accumula-

tion of extraneous matter. The use of hot water or steam, though doubtless it has some effect in quelling inflammation, has been, in my opinion, somewhat overrated as a remedy for acne.

Such is a sketch of the topical treatment of acne—the sort of treatment, however it may be modified, elaborated, and improved, which I believe, for reasons already given, to represent the radical treatment. It is a sketch merely, for it was my design only to illustrate a general plan of treatment by which the chief indications of the disease might be met. It is far from including all the remedies which are useful and appropriate in this disease. There are few diseases indeed that have given such wide scope to the ingenuity and fertility of the prescriber as acne. But to be armed with an array of acne prescriptions, however formidable, is but a poor equipment for successful management of the disease. With a definite comprehension of what acne is and what the essential conditions are that require to be altered, the remedies suggest themselves, and the mere form of the prescription becomes a matter of little significance.

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